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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,604	08/25/2003	Peter J. Hopper	NSC1-M3000 (P05657)	2816
28584	7590	12/30/2005	EXAMINER	
STALLMAN & POLLOCK LLP 353 SACRAMENTO STREET SUITE 2200 SAN FRANCISCO, CA 94111			MONDT, JOHANNES P	
			ART UNIT	PAPER NUMBER
			3663	

DATE MAILED: 12/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/647,604	<b>Applicant(s)</b> HOPPER ET AL.	
	<b>Examiner</b> Johannes P. Mondt	<b>Art Unit</b> 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination ("RCE") under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/12/05 has been entered.

### ***Response to Amendment***

Amendment filed 12/12/05 with aforementioned RCE forms the basis for this office action. In said Amendment Applicants substantially amended all claims through substantial amendment of independent claims 1 and 7. Comments on Remarks submitted said Amendment are included below under "Response to Arguments".

### ***Claim Objections***

1. ***Claims 1-6*** are objected to because of the following informalities: the wording "the second portion" (line 15 of claim 1) should be replaced by: "a second portion". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 1-3 and 5-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yama (6,121,657) in view of Applicant's Prior Art as Admitted in the specification.

*Yama teaches* a MOSFET structure (see abstract) formed in a substrate 6 of semiconductor material having a first conductivity type (p-type) (col. 3, lines 58-63), the MOSFET structure comprising:

an active region 6 of the substrate (all of region 6 is active; Figures 1B and 1C) having a substantially rectangular perimeter (Figure 1A);

perimeter isolation dielectric material 7 (col. 3, lines 58-67) formed in the substrate (cf. Figs. 1B and 1C; N.B.: any region abutting another region can be viewed to be in said another region);

spaced apart source and drain regions 1a and 1b, respectively, having a second conductivity type (n-type) (col. 3, lines 34-49) opposite said first conductivity type formed in the active region 6 to define a substrate channel region therebetween (region of 6 between 1 a and 1b), both source and drain regions also being spaced apart from the perimeter dielectric isolation material (cf. Figures 1B and 1C); and

a conductive gate electrode 2 (col. 3, line 65 – col. 4, line 35) that includes a first portion that extends over the substrate channel region (small straight rectangular portions 2 in Figures 1B and 1C) and a second portion that extends continuously over the entire interface between the isolation dielectric material 7 and the active region (cf. Figures 1B and 1C: portions abutting 7), the conductive gate electrode being separated

from the substrate channel region by intervening dielectric material (this is inherent in any MOS (=metal-oxide-semiconductor) transistor as disclosed (see abstract), the conductive gate electrode 2 including a first opening 4 formed there through over the source region 1a (Figures 1A and 1B) and a second opening 4 formed there through over the drain region 1b (Figures 1A and 1C).

*Yama does not necessarily teach the limitation that the aforementioned perimeter isolation dielectric material is formed along the entire substantially rectangular perimeter of the active region and thus to define a continuous substantially rectangular interface between the isolation dielectric material and the active region. However, it would have been obvious to include said limitation in view of Applicant's Prior Art as Admitted in the specification on page 2, showing perimeter isolation dielectric material 102 (see Prior Art Figures 1A and 1B and page 2, line 8) formed along the entire substantially rectangular perimeter of the active region 110/112/116, thereby defining a continuous, substantially rectangular interface between said isolation dielectric material and said active region.*

*Motivation to include the teaching by Applicant's Prior Art as Admitted by Applicant stems from the substantially rectangular form of the active region that is to be protected by said perimeter isolation dielectric material, on account of which it is only a logical consequence of its very purpose as stated by Yama, namely: to enclose the active region (see col. 3, lines 60-64).*

*On claim 7, said claim 7 merely recites steps in the process of manufacturing the device as claimed. The device of claim 1 would necessarily have to be formed in order*

to function. Claim 7 fails to further limit the device of claim 7 other than simply form each of their components.

*On claim 2:* said perimeter isolation dielectric material 7 comprises silicon dioxide (LOCOS = local oxidation of silicon) (col. 3, line 62).

*On claim 3:* the conductive gate electrode by Yama comprises polysilicon (col. 3, line 35).

*On claim 5:* the first conductivity type is p-type (col. 3, lines 58-63).

*On claims 6 and 8:* Applicant's disclosure does not teach why the range as claimed is critical to the invention. Instead, Applicants merely state their "belief" that the range should be what is claimed (see page 8 of the Specification), and even this belief is limited to imager art only while nothing in the claim language limits the invention to this art. In view of the absence of a teaching why a range is critical to the invention Applicant is reminded that it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. With regard to claim 8, said claim merely recites steps in the process of manufacturing the device as claimed. The device of claim 6 would necessarily have to be formed in order to function. Claim 8 fails to further limit the device of claim 6 other than simply form each of their components.

2. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Yama and Applicant's Prior Art as Admitted in the specification as applied to claim 1 above, and further in view of Wolf (ISBN: 0-961672-5-3).

*As detailed above, claim 1 is unpatentable over Yama in view of Applicant's Prior Art as Admitted in the specification, neither however teaching the further limitation defined by claim 4.*

*However, it would have been obvious to include said further limitation in view of Wolf, who, in a text book introduction to MOS transistors, teaches that silicon dioxide is the most common selection for the gate dielectric material in a MOS transistor (see line 4 of 3.1.1 on page 85). Examiner takes official notice that this common and time-honored selection is at least *motivated* due to ease of making, silicon already being in place as an upper portion that merely needs to be oxidized.*

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new grounds of rejection following substantial amendment of all claims.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Hotta, Nobuaki (JP 62123736 A).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P. Mondt whose telephone number is 571-272-1919. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack W. Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPM  
December 27, 2005

Patent Examiner:

A handwritten signature in black ink, appearing to read 'J. Mondt', with a stylized flourish at the end.

Johannes Mondt (Art Unit: 3663).